

Form 1449 (Modified)

Information Disclosure  
Statement By Applicant

(Use Several Sheets if Necessary)

Atty Docket No.:

IMM1P013B

Application No.:

08/140,713

Applicant:

Louis B. Rosenberg et al.

Filing Date:

August 26, 1998

Group:

2779

## U.S. Patent Documents

| Examiner Initial | No. | Patent No. | Date     | Patentee         | Class | Sub-class | Filing Date |
|------------------|-----|------------|----------|------------------|-------|-----------|-------------|
| JB               | A   | 3,490,059  | 01/13/70 | Paulsen et al.   | 73    | 133       | 06/06/66    |
| JB               | B   | 3,795,150  | 03/05/74 | Eckhardt         | 74    | 5.4       | 12/13/72    |
|                  | C   | 3,875,488  | 04/01/75 | Crocker et al.   | 318   | 648       | 02/15/73    |
|                  | D   | 4,148,014  | 04/03/79 | Burson           | 340   | 709       | 04/06/77    |
|                  | E   | 4,216,467  | 08/05/80 | Colston          | 340   | 365L      | 12/22/77    |
|                  | F   | 4,398,889  | 08/16/83 | Lam et al.       | 434   | 45        | 06/08/81    |
|                  | G   | 4,436,188  | 03/13/84 | Jones            | 188   | 378       | 11/18/81    |
|                  | H   | 4,477,043  | 10/16/84 | Repperger        | 244   | 223       | 12/15/82    |
|                  | I   | 4,632,341  | 12/30/86 | Repperger et al. | 244   | 230       | 02/06/85    |
| JB               | J   | 4,689,449  | 08/25/87 | Rosen            | 200   | 6         | 10/03/86    |
|                  | K   | 4,712,101  | 12/08/87 | Culver           | 340   | 710       | 12/04/84    |

## Foreign Patent or Published Foreign Patent Application

| Examiner Initial | No. | Document No. | Publication Date | Country or Patent Office | Class | Sub-class | Translation |    |
|------------------|-----|--------------|------------------|--------------------------|-------|-----------|-------------|----|
|                  |     |              |                  |                          |       |           | Yes         | No |
| JB               | L   | 4-34610      | 05.02.92         | Japan                    |       |           | X           |    |
| JB               | M   | 2254911A     | 21.10.92         | UK                       |       |           | X           |    |
|                  | N   | WO9520787    | 03.08.95         | PCT                      |       |           | X           |    |
|                  | O   | WO9520788    | 03.08.95         | PCT                      |       |           | X           |    |
| JB               | P   | WO9532459    | 30.11.95         | PCT                      |       |           | X           |    |

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| Examiner Initial                                | No. | Author, Title, Date, Place (e.g. Journal) of Publication   |
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| JB  | R   | Snow, E. et al., "Compact Force-Reflecting Hand Controller," JPL, April 1991, Vol. 15, No. 3, Item No. 153, pp. 1-15a.                                   |
| JB  | S   | Howe, Robert D., "Task Performance with a Dextrous Teleoperated Hand System," Proceedings of SPIE, November 1992, Vol. 1833, pp. 1-9.                    |
| JB  | T   | Buttolo et al., "Hard Disk Actuators for Mini Teleoperation", Proceedings SPIE Telemanipulator and Telepresence Technologies, October 31, 1994, pp. 1-8. |
| Examiner<br>JEFFERY S. A. :<br>PRIMARY EXAMINER |     | Date Considered<br>7-18-00   |

Examiner: Initial citation considered. Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant.

Form 1449 (Modified)

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Application No.: 08/140,717

Applicant: Louis B. Rosenberg et al.

Filing Date: August 26, 1998

Group: 2779

GROUP 2700

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### U.S. Patent Documents

| Examiner Initial | No. | Patent No. | Date     | Patentee        | Class | Sub-class | Filing Date |
|------------------|-----|------------|----------|-----------------|-------|-----------|-------------|
| JB               | A   | 4,775,289  | 10/4/88  | Kazerooni       | 414   | 735       | 09/25/87    |
|                  | B   | 4,800,721  | 01/31/89 | Cemenska et al. | 60    | 393       | 02/13/87    |
|                  | C   | 4,803,413  | 02/07/89 | Kendig et al.   | 318   | 648       | 07/15/86    |
|                  | D   | 4,811,608  | 03/14/89 | Hilton          | 73    | 862.04    | 11/06/86    |
|                  | E   | 4,839,838  | 06/13/89 | LaBiche et al.  | 364   | 709.11    | 03/30/87    |
|                  | F   | 4,874,998  | 10/17/89 | Hollis Jr.      | 318   | 568.21    | 06/21/88    |
|                  | G   | 4,879,556  | 11/07/89 | Duimel          | 341   | 20        | 10/26/87    |
|                  | H   | 4,896,554  | 01/30/90 | Culver          | 74    | 471 XY    | 04/24/89    |
|                  | I   | 4,907,970  | 03/19/90 | Meenen, Jr.     | 434   | 45        | 03/30/88    |
|                  | J   | 4,961,138  | 10/02/90 | Gorniak         | 364   | 200       | 10/02/89    |
| JB               | K   | 5,007,300  | 04/16/91 | Siva            | 74    | 471XY     | 01/22/90    |

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|------------------|-----|--------------|------------------|--------------------------|-------|-----------|-------------|----|
|                  |     |              |                  |                          |       |           | Yes         | No |
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|                  | P   |              |                  |                          |       |           |             |    |

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| JB                                 | R               | Kilpatrick, Paul Jerome, "The Use of a Kinesthetic Supplement in an Interactive Graphics System", Univ. North Carolina at Chapel Hill, 1976.  |
| JB                                 | S               | Winey III, Calvin Mccoy, "Computer Simulated Visual and Tactile Feedback as an Aid to Manipulator and Vehicle Control," MIT, June 1981.   |
| JB                                 | T               | Jacobsen, S.C. et al., "High Performance, High Dexterity, Force Reflective Teleoperator II," ANS Topical Meeting on Robotics & Remote Systems," Albuquerque, New Mexico February 24-27, 1991, pp. 1-10. |
| Examiner                           | Date Considered |   |
| JEFFREY M. MEN<br>PRIMARY EXAMINER |                 | 7-18-00   |

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| Examiner Initial | No. | Patent No. | Date     | Patentee        | Class | Sub-class | Filing Date |
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| JB               | A   | 5,044,956  | 09/03/91 | Behensky et al. | 434   | 45        | 01/12/89    |
|                  | B   | 5,095,303  | 03/10/92 | Clark et al.    | 340   | 710       | 03/27/90    |
|                  | C   | 5,103,404  | 04/07/92 | McIntosh        | 318   | 568.22    | 12/20/89    |
|                  | D   | 5,107,080  | 04/21/92 | Rosen           | 200   | 6         | 12/01/89    |
|                  | E   | 5,116,051  | 05/26/92 | Moncrief et al. | 273   | 448B      | 06/08/90    |
|                  | F   | 5,142,931  | 09/01/92 | Menahem         | 74    | 471XY     | 02/14/91    |
|                  | G   | 5,143,505  | 09/01/92 | Burdea et al.   | 414   | 5         | 02/26/91    |
|                  | H   | 5,182,557  | 01/26/93 | Lang            | 341   | 20        | 11/13/90    |
|                  | I   | 5,184,319  | 02/02/93 | Kramer          | 364   | 806       | 02/02/90    |
|                  | J   | 5,185,561  | 02/09/93 | Good et al.     | 318   | 432       | 07/23/91    |
|                  | K   | 5,186,629  | 02/16/93 | Rohen           | 434   | 114       | 08/22/91    |

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|------------------|-----|--------------|------------------|--------------------------|-------|-----------|-------------|----|
|                  |     |              |                  |                          |       |           | Yes         | No |
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|------------------------------------|-----|---|
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| JB                                 | S   | Bejczy, Antal K., "The Phantom Robot: Predictive Displays for Teleoperation with Time Delay," IEEE 1990, pp. 546-550.                               |
| JB                                 | T   | Buttolo, Pietro et al., "Pen-Based Force Display for Precision Manipulation in Virtual Environments," IEEE March 1995, pp. 1-8.                     |
| JEFFERY L. WET<br>PRIMARY EXAMINER |     | 7-18-04   |

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### U.S. Patent Documents

| Examiner Initial | No. | Patent No. | Date     | Patentee        | Class | Sub-class | Filing Date |
|------------------|-----|------------|----------|-----------------|-------|-----------|-------------|
| JB               | A   | 5,220,260  | 06/15/93 | Schuler         | 318   | 561       | 10/24/91    |
| JB               | B   | 5,223,776  | 06/29/93 | Radke et al.    | 318   | 568.1     | 12/31/90    |
| JB               | C   | 5,228,356  | 07/20/93 | Chuang          | 74    | 471XY     | 11/25/91    |
| JB               | D   | 5,264,768  | 11/23/93 | Gregory et al.  | 318   | 561       | 10/06/92    |
| JB               | E   | 5,275,565  | 01/04/94 | Moncrief        | 434   | 29        | 02/23/93    |
| JB               | F   | 5,296,846  | 03/22/94 | Ledley          | 345   | 161       | 10/05/92    |
| JB               | G   | 5,354,162  | 10/11/94 | Burdea et al.   | 414   | 5         | 08/31/92    |
| JB               | H   | 5,389,865  | 02/14/95 | Jacobus et al.  | 318   | 568.11    | 12/02/92    |
| JB               | I   | 5,396,266  | 03/07/95 | Brimhall        | 345   | 161       | 06/08/93    |
| JB               | J   | 5,396,267  | 03/07/95 | Bouton          | 345   | 168       | 01/07/93    |
| JB               | K   | 5,405,152  | 04/11/95 | Katanics et al. | 273   | 438       | 06/08/93    |

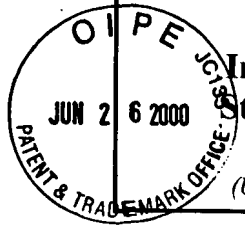
### Foreign Patent or Published Foreign Patent Application

| Examiner Initial | No. | Document No. | Publication Date | Country or Patent Office | Class | Sub-class | Translation |    |
|------------------|-----|--------------|------------------|--------------------------|-------|-----------|-------------|----|
|                  |     |              |                  |                          |       |           | Yes         | No |
|                  | L   |              |                  |                          |       |           |             |    |
|                  | M   |              |                  |                          |       |           |             |    |
|                  | N   |              |                  |                          |       |           |             |    |
|                  | O   |              |                  |                          |       |           |             |    |
|                  | P   |              |                  |                          |       |           |             |    |

### Other Documents

| Examiner Initial                  | No. | Author, Title, Date, Place (e.g. Journal) of Publication   |
|-----------------------------------|-----|--|
| JB                                | R   | Tan, Hong Z. et al., "Human Factors for the Design of Force-Reflecting Haptic Interfaces," Tan, Srinivasan, Eberman, & Chang, ASME WAM 1994, pp. 1-11. |
| JB                                | S   | Ellis, R.E. et al., "Design and Evaluation of a High-Performance Prototype Planar Haptic Interface," ASME Dec. 3, 1993, DSC-Vol. 49, pp. 55-64.        |
| JB                                | T   | Adelstein, Bernard D. et al., "A High Performance Two Degree-of-Freedom Kinesthetic Interface," Mass. Institute of Technology 1992, pp. 108-112.       |
| JEFFERY SMITH<br>PRIMARY EXAMINER |     | 7-18-00  |

Examiner: Initial citation considered. Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant.



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| <b>Form 1449 (Modified)</b><br><br><b>Information Disclosure Statement By Applicant</b><br><br>(Use Several Sheets if Necessary) | <b>Atty Docket No.:</b><br>IMM1P013B           | <b>Application No.:</b><br>08/140,717 |
|  | <b>Applicant:</b><br>Louis B. Rosenberg et al. |                                       |
|  | <b>Filing Date:</b><br>August 26, 1996         | <b>Group:</b><br>2779                 |

**U.S. Patent Documents**

| Examiner Initial | No. | Patent No. | Date     | Patentee         | Class | Sub-class | Filing Date |
|------------------|-----|------------|----------|------------------|-------|-----------|-------------|
| JB               | A   | 5,412,880  | 05/09/95 | Raab             | 503   | 503       | 08/26/93    |
|                  | B   | 5,414,337  | 05/09/95 | Schuler          | 318   | 561       | 06/11/93    |
|                  | C   | 5,429,140  | 07/04/95 | Burdea et al.    | 128   | 774       | 06/04/93    |
|                  | D   | 5,436,640  | 07/25/95 | Reeves           | 345   | 161       | 11/30/94    |
|                  | E   | 5,451,924  | 09/19/95 | Massimino et al. | 340   | 407.1     | 01/14/93    |
|                  | F   | 5,452,615  | 09/26/95 | Hilton           | 73    | 862.043   | 07/22/93    |
|                  | G   | 5,459,382  | 10/17/95 | Jacobus et al.   | 318   | 568.11    | 06/09/94    |
|                  | H   | 5,512,919  | 04/30/96 | Araki            | 345   | 156       | 03/30/93    |
|                  | I   | 5,513,100  | 04/30/96 | Parker et al.    | 364   | 167       | 06/10/93    |
|                  | J   | 5,532,585  | 07/02/96 | Oudet et al.     | 324   | 207.22    | 05/20/94    |
|                  | K   | 5,576,727  | 11/19/96 | Rosenberg et al. | 345   | 179       | 06/05/95    |

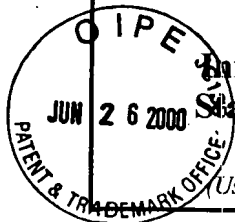
**Foreign Patent or Published Foreign Patent Application**

| Examiner Initial | No. | Document No. | Publication Date | Country or Patent Office | Class | Sub-class | Translation |    |
|------------------|-----|--------------|------------------|--------------------------|-------|-----------|-------------|----|
|                  |     |              |                  |                          |       |           | Yes         | No |
|                  | L   |              |                  |                          |       |           |             |    |
|                  | M   |              |                  |                          |       |           |             |    |
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|                  | O   |              |                  |                          |       |           |             |    |
|                  | P   |              |                  |                          |       |           |             |    |

**Other Documents**

| Examiner Initial                  | No. | Author, Title, Date, Place (e.g. Journal) of Publication  |
|-----------------------------------|-----|---|
| JB                                | R   | Colgate J. Edward et al., "Implementation of Stiff Virtual Walls in Force-Reflecting Interfaces, September 22, 1993, pp. 1-9. |
| JB                                | S   | Iwata, Hiroo et al, "Volume Haptization, IEEE 1993, pp. 16-18.  |
| JB                                | T   | Fischer, Patrick et al., "Specification and Design of Input Devices for Teleoperation," 1990.                                 |
| JEFFERY BRIER<br>PRIMARY EXAMINER |     | 7-18-00   |

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| Examiner Initial | No. | Patent No. | Date     | Patentee         | Class | Sub-class | Filing Date |
|------------------|-----|------------|----------|------------------|-------|-----------|-------------|
| JB               | A   | 5,587,937  | 12/24/96 | Massie et al.    | 364   | 578       | 04/25/95    |
|                  | B   | 5,589,828  | 12/31/96 | Armstrong        | 341   | 20        | 03/05/92    |
|                  | C   | 5,589,854  | 12/31/96 | Tsai             | 345   | 161       | 06/22/95    |
|                  | D   | 5,591,924  | 01/07/97 | Hilton           | 73    | 862.043   | 04/23/93    |
|                  | E   | 5,623,582  | 04/22/97 | Rosenberg        | 395   | 99        | 07/14/94    |
|                  | F   | 5,629,594  | 05/13/97 | Jacobus et al.   | 318   | 568       | 08/16/95    |
| JB               | G   | 5,642,469  | 06/24/97 | Hannaford et al. | 395   | 99        | 11/03/94    |
|                  | H   |            |          |                  |       |           |             |
|                  | I   |            |          |                  |       |           |             |
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## Foreign Patent or Published Foreign Patent Application

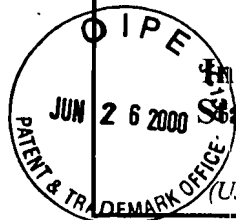
| Examiner Initial | No. | Document No. | Publication Date | Country or Patent Office | Class | Sub-class | Translation |
|------------------|-----|--------------|------------------|--------------------------|-------|-----------|-------------|
|                  | L   |              |                  |                          |       |           | Yes No      |
|                  | M   |              |                  |                          |       |           |             |
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## Other Documents

| Examiner Initial | No.             | Author, Title, Date, Place (e.g. Journal) of Publication   |
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| JB               | R               | Rosenberg, Louis B., "The Use of Virtual Fixtures to Enhance Operator Performance in Time Delayed Teleoperation, March 1993, pp. 1-45.   |
| JB               | S               | Rosenberg, Louis B., "Perceptual Design of a Virtual Rigid Surface Contact," Center for Design Research Stanford University, Air Force Material Command, April 1993, pp. 1-41. |
| JB               | T               | Rosenberg, Louis B. et al., "Perceptual Decomposition of Virtual Haptic Surfaces," IEEE, October 1993.   |
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|                  | 7-18-00         |  |

Examiner: Initial citation considered. Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant.

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|------------------|-----|------------|------|----------|-------|-----------|-------------|
|                  | A   |            |      |          |       |           |             |
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| JB   | S   | Rosenberg, Louis B., "Virtual Fixtures as Tools to Enhance Operator Performance in Telepresence Environments," SPIE Telemanipulator Technology, March 1993. |
| JB   | T   | Rosenberg, Louis B., "Virtual Haptic Overlays Enhance Performance in Telepresence Tasks," SPIE 1994.  |
| <b>Examiner</b><br>JEFFERY BRIER<br>PRIMARY EXAMINER |     | <b>Date Considered</b><br>7-18-00   |

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|                  | A   |            |      |          |       |           |             |
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### Foreign Patent or Published Foreign Patent Application

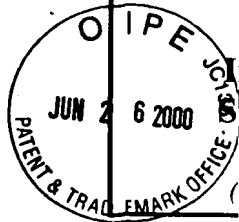
| Examiner Initial | No. | Document No. | Publication Date | Country or Patent Office | Class | Sub-class | Translation |    |
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|                  |     |              |                  |                          |       |           | Yes         | No |
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| JB  | S   | Hannaford, Blake et al., "Performance Evaluation of a Six-Axis Generalized Force-Reflecting Teleoperator," IEEE May/June 1991, Vol. 21, No. 3, pp. 620-633. |
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Examiner: Initial citation considered. Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant.





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| <b>Form 1449 (Modified)</b><br><b>Information Disclosure Statement By Applicant</b><br>(Use Several Sheets if Necessary) | <b>Atty Docket No.:</b><br>IMM1P013B           | <b>Application No.:</b><br>08/140,717 |
|  | <b>Applicant:</b><br>Louis B. Rosenberg et al. |                                       |
|  | <b>Filing Date:</b><br>August 26, 1998         | <b>Group:</b><br>2779                 |

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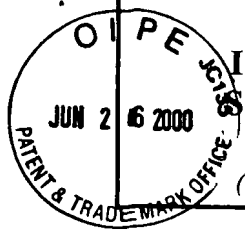
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| Examiner Initial | No. | Document No. | Publication Date | Country or Patent Office | Class | Sub-class | Translation |    |
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| Examiner<br>JEFFERY BRIER<br>PRIMARY EXAMINER |     | Date Considered<br>7-18-00  |

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|  |   |                                |
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| Form 1449 (Modified)<br><b>Information Disclosure Statement By Applicant</b><br>(Use Several Sheets if Necessary) 12 | Atty Docket No.:<br>IMM1P013B           | Application No.:<br>08/140,717 |
|  | Applicant:<br>Louis B. Rosenberg et al. |                                |
|  | Filing Date:<br>August 26, 1998         | Group:<br>2779                 |

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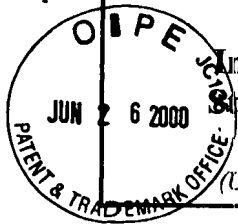
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| Examiner Initial | No. | Document No. | Publication Date | Country or Patent Office | Class | Sub-class | Translation |    |
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|   |  |                                       |
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| <b>Form 1449 (Modified)</b><br><b>Information Disclosure Statement By Applicant</b><br>(Use Several Sheets if Necessary) 13 | <b>Atty Docket No.:</b><br>IMM1P013B           | <b>Application No.:</b><br>08/140,712 |
|   | <b>Applicant:</b><br>Louis B. Rosenberg et al. |                                       |
|   | <b>Filing Date:</b><br>August 26, 1998         | <b>Group:</b><br>2779                 |

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| JB  | S   | Wiker, Steven F. et al., "Development of Tactile Mice for Blind Access to Computers: Importance of Stimulation Locus, Object Size, and Vibrotactile Display Resolution," Proceedings of the Human Factors Society 35th Annual Meeting 1991, pp. 708-712. |
| JB  | T   | Tavkhelidze, D.S. "Kinematic Analysis of Five-Link Spherical Mechanisms," Mechanism and Machine Theory 1974, Vol. 9, pp. 181-190.  |
| Examiner<br>JEFFERY ERIER<br>PRIMARY EXAMINER |     | Date Considered<br>7-18-00   |

Examiner: Initial citation considered. Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant.



|   |  |                                       |
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| <b>Form 1449 (Modified)</b><br><b>Information Disclosure Statement By Applicant</b><br>(Use Several Sheets if Necessary) 14 | <b>Atty Docket No.:</b><br>IMM1P013B           | <b>Application No.:</b><br>08/140,719 |
|   | <b>Applicant:</b><br>Louis B. Rosenberg et al. |                                       |
|   | <b>Filing Date:</b><br>August 26, 1998         | <b>Group:</b><br>2779                 |

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**U.S. Patent Documents**

| Examiner Initial | No. | Patent No. | Date | Patentee | Class | Sub-class | Filing Date |
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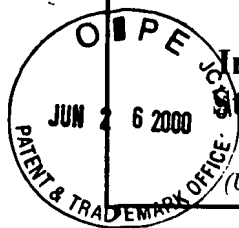
| Examiner Initial | No. | Document No. | Publication Date | Country or Patent Office | Class | Sub-class | Translation |    |
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| JB  | T   | Schmult, Brian et al., "Application Areas for a Force-Feedback Joystick," ASME 1993, DSC-Vol. 49, pp. 47-54. |
| Examiner<br>JEFFERY DRIER<br>PRIMARY EXAMINER |     | Date Considered<br>7-18-00   |

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| <b>Form 1449 (Modified)</b><br><b>Information Disclosure Statement By Applicant</b><br>(Use Several Sheets if Necessary) | <b>Atty Docket No.:</b><br>IMM1P013B           | <b>Application No.</b><br>08/140,717 |
|  | <b>Applicant:</b><br>Louis B. Rosenberg et al. |                                      |
|  | <b>Filing Date:</b><br>August 26, 1998         | <b>Group:</b><br>2779                |

**U.S. Patent Documents**

| Examiner Initial | No. | Patent No. | Date | Patentee | Class | Subclass | Filing Date |
|------------------|-----|------------|------|----------|-------|----------|-------------|
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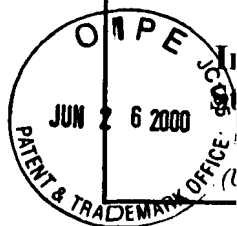
**Foreign Patent or Published Foreign Patent Application**

| Examiner Initial | No. | Document No. | Publication Date | Country or Patent Office | Class | Sub-class | Translation |    |
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| JB  | T   | Kotoku, Tetsuo, "A Predictive Display with Force Feedback and its Application to Remote Manipulation System with Transmission Time Display," IEEE 1992, July 7-10, 1992, pp. 239-246. |
| <b>Examiner</b><br>JEFFERY S. SHELTON<br>PRIMARY EXAMINER |     | <b>Date Considered</b><br>7-15-00   |

Examiner: Initial citation considered. Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant.



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| Form 1449 (Modified)<br><b>Information Disclosure Statement By Applicant</b><br>(Use Several Sheets if Necessary) | Atty Docket No.:<br>IMM1P013B           | Application No.<br>08/140,711 |
|   | Applicant:<br>Louis B. Rosenberg et al. |                               |
|   | Filing Date:<br>August 26, 1998         | Group:<br>2779                |

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| JB               | D   | 4,604,016  | 08/05/86 | Joyce           | 414   | 700       | 08/03/83    |
| JB               | E   | 4,677,355  | 06/30/87 | Baumann         | 318   | 160       | 05/27/86    |
| JB               | F   | 4,706,294  | 11/10/87 | Ouchida         | 381   | 109       | 06/10/86    |
| JB               | G   | 4,795,296  | 01/03/89 | Jau             | 414   | 5         | 11/17/86    |
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| JB               | P   | WO 96/39944  | 12/19/96         | PCT                      |       |           | X               |    |

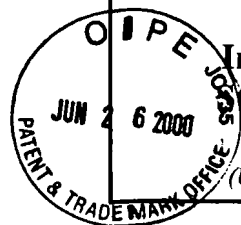
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| Examiner Initial        | No. | Author, Title, Date, Place (e.g. Journal) of Publication   |
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|  | <b>Applicant:</b><br>Louis B. Rosenberg et al. |                                       |
|  | <b>Filing Date:</b><br>August 26, 1998         | <b>Group:</b><br>2779                 |



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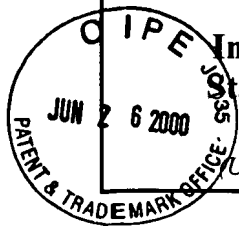
## Foreign Patent or Published Foreign Patent Application

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| JB                               | T   | Kelley, et al., "MagicMouse: Tactile and Kinesthetic Feedback in the Human-Computer Interface using an Electromagnetically Actuated Input/Output Device," Dept. of Electrical Eng., Univ. of British Columbia, Oct. 1993.                             |
| <b>Examiner:</b><br>JEFFERY SNEL |     | <b>Date Considered:</b><br>7-18-00  |

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| <b>Form 1449 (Modified)</b><br><b>Information Disclosure Statement By Applicant</b><br>(Use Several Sheets if Necessary) 18 | <b>Atty Docket No.:</b><br>IMM1P013B           | <b>Application No.:</b><br>08/140,711 |
|   | <b>Applicant:</b><br>Louis B. Rosenberg et al. |                                       |
|   | <b>Filing Date:</b><br>August 26, 1998         | <b>Group:</b><br>2779                 |

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| JB               | A   | 5,381,080  | 01/10/95 | Schnell et al.   | 318   | 566       | 02/18/93    |
| JB               | B   | 5,436,640  | 07/25/95 | Reeves           | 345   | 161       | 11/30/94    |
| JB               | C   | 5,473,235  | 12/05/95 | Lance et al.     | 318   | 561       | 12/31/93    |
| JB               | D   | 5,542,672  | 08/06/96 | Meredith         | 463   | 37        | 03/17/95    |
| JB               | E   | 5,591,082  | 01/07/97 | Jensen et al.    | 463   | 38        | 01/05/95    |
| JB               | F   | 5,634,794  | 06/03/97 | Hildreth et al.  | 434   | 37        | 03/23/95    |
| JB               | G   | 5,643,087  | 07/01/97 | Marcus et al.    | 463   | 38        | 07/29/94    |
| JB               | H   | 5,656,901  | 08/12/97 | Kurita           | 318   | 436       | 04/21/95    |
| JB               | I   | 5,666,138  | 09/09/97 | Culver           | 345   | 161       | 11/22/94    |
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| Examiner Initial | No. | Document No. | Publication Date | Country or Patent Office | Class | Sub-class | Translation Yes | No |
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| JB  | S   | Hirota, et al., "Development of Surface Display," 1993 IEEE, 0-7803-1363, pp. 256-262.  |
| JB  | T   | Brooks, Jr., et al., "Project GROPE - Haptic Displays for Scientific Visualization," Computer Graphics, Vol. 24, No. 4, Aug. 1990, pp. 177-185.   |
| <b>Examiner:</b><br>JEFFERY BRIEN<br>PRIMARY EXAMINER |     | <b>Date Considered:</b><br>7-18-00  |

Examiner: Initial citation considered. Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant.



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Form 1449 (Modified)

Atty Docket No.:

IMM1P013B

Application No.:

08/140,717

Information Disclosure  
Statement By Applicant

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19

Applicant:

Louis B. Rosenberg et al.

Filing Date:

August 26, 1998

Group:

2779

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| JB               | D   | 5,731,804  | 03/24/98 | Rosenberg        | 345   | 156       | 01/18/95    |
| JB               | E   | 5,734,373  | 03/31/98 | Rosenberg et al. | 345   | 161       | 12/01/95    |
| JB               | F   | 5,739,811  | 04/14/98 | Rosenberg et al. | 345   | 161       | 09/27/95    |
| JB               | G   | 5,742,278  | 04/21/98 | Chen et al.      | 345   | 156       | 11/01/95    |
| JB               | H   | 5,754,023  | 05/19/98 | Roston et al.    | 318   | 561       | 10/22/96    |
| JB               | I   | 5,755,577  | 05/26/98 | Gillio           | 434   | 262       | 07/11/96    |
| JB               | J   | 5,767,839  | 06/16/98 | Rosenberg        | 345   | 161       | 03/03/95    |
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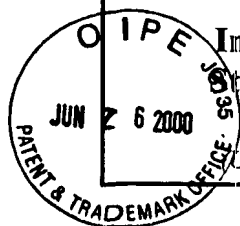
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| Examiner: JEFFERY S. BRET<br>PRIMARY EXAMINER |     | Date Considered:<br>7-18-00                              |

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| <b>Form 1449 (Modified)</b><br><b>Information Disclosure Statement By Applicant</b><br><i>(Use Several Sheets if Necessary)</i> 20 | <b>Atty Docket No.:</b><br>IMM1P013B           | <b>Application No.:</b><br>08/140,717 |
|  | <b>Applicant:</b><br>Louis B. Rosenberg et al. |                                       |
|  | <b>Filing Date:</b><br>August 26, 1998         | <b>Group:</b><br>2779                 |

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| JB               | C   | 5,821,920  | 10/13/98 | Rosenberg et al. | 345   | 156       | 03/28/98    |
| JB               | D   | 5,823,876  | 10/20/98 | Unbehand         | 463   | 37        | 05/03/96    |
| JB               | E   | 5,880,714  | 03/09/99 | Rosenberg et al. | 345   | 156       | 01/15/97    |
| JB               | F   | 5,889,670  | 03/30/99 | Schuler et al.   | 364   | 186       | 01/11/96    |
| JB               | G   | 5,889,672  | 03/30/99 | Schuler et al.   | 364   | 188       | 06/03/98    |
| JB               | H   | 5,944,151  | 08/31/99 | Jakobs et al.    | 188   | 267.1     | 07/09/96    |
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| <b>Examiner:</b><br>JEFFERY SNIEN<br>PRIMARY EXAMINER |     | <b>Date Considered:</b><br>7-18-00                       |

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| Form 1449 (Modified)   | Atty Docket No.:<br>IMM1P013B           | Application No.:<br>08/140,717 |
| Information Disclosure<br>Statement By Applicant<br><br>(Use Several Sheets if Necessary) 21 | Applicant:<br>Louis B. Rosenberg et al. |                                |
|  | Filing Date:<br>August 26, 1998         | Group:<br>2779                 |

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|                  | B   |            |          |                  |       |           |             |
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| Examiner: JEFFERY BRIEN<br>PRIMARY EXAMINER |     | Date Considered:<br>7-18-00                              |

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| JB               | B   | 6,037,927  | 3/14/00 | Rosenberg | 345   | 156       | 4/7/97      |
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|                  | T                          |  |
| Examiner         | <i>Jeffrey A. Brier</i>    |  |
|                  | Date Considered<br>8-15-00 |  |

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